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[Continued on next page]

(54) Title: **PLANT LIMIT DEXTRINASE INHIBITOR**

	10	20	30	40	50
Hordeum vulgare	---MARD-HR	RFVLSGAVLL	SVLAVAAATL	E-----	SVKDECCQGV
Oryza sativa	---MASN-KV	VFSVLLAVV	SVLAATAATMA	EYRHQDQVY	TPGPLCQPGM
Hordeum spontaneum	---MAFK--Y	QELLSAAVML	AILAATVT--		SPGDMCAPGD
Eleusine coracana					SVGTSCIPGN
Sesale cereale					SVGGQCVPGI
Triticum durum	---MACKSSC	SILLAAVLL	SVLAA--A-		SASGSCVPGV
Zea mays	MASSSSSSR	RLILAAVLL	SVLAAASA-		SAGTSCVPGW
Triticum aestivum	---MASN-HR	RFLLSGAVLL	SVLAAVAA-L	E-----	SVEDECCQGV

	60	70	80	90	100
Hordeum vulgare	DFPENPLATC	HTYVIKRCVG	---RGPSRPM	LV-----	-----KERC
Oryza sativa	GYPMYPLPRC	RALVKRCQVG	---RGTAATAA	EQ-----	-----VRRDC
Hordeum spontaneum	ALPANPLPRC	RTYVVSQIC-	---HVGFRLST	ND-----	-----MKRRC
Eleusine coracana	AIPENPLDSC	RNYVAKRACG	---VGFRLAT	QR-----	-----MKRRC
Sesale cereale	AMPHNPLGAC	RTYVVSQIC-	---HVGFRLPT	WD-----	-----MKRRC
Triticum durum	AFRINLLPHC	RDYVLQQTGC	TFTPGSKLPE	WMTSASTYSP	GKPYLAKLYC
Zea mays	AIPENPLPSC	RNYVTSRTGC	---IGFRLPW	PE-----	-----LKERC
Triticum aestivum	APPENALATC	HTYVIKRCVG	---RGPSRPM	LV-----	-----KERC

	110	120	130	140	150
Hordeum vulgare	CRRLAAPP-D	ECRCALRLIL	MDGVETPR--	---GRVVEG	RLGDRRDCPR
Oryza sativa	CRQLAAVDDS	WCRCAIISHM	LGGIYRELQ-	---APDVGHP	MSEVFRGCR
Hordeum spontaneum	CDLSAIP-A	YCRCAALRII	MDGTVTWQ--	---GVFG-A	YFKDMPCPR
Eleusine coracana	CRQLAIP-A	YCRCAAVRIL	MDGVVTP--	---SGQHEGR	LLQDLPGCPR
Sesale cereale	CDRLAIP-A	YCRCAALRLI	MDGVVTPQ--	---GVFEGG	YKDMPCPR
Triticum durum	CQELAEIS-Q	QCRCAALRYF	IALPVPSQFV	DPKSGNVGHS	GLIDLPGCPR
Zea mays	CRRLADIP-A	YCRCTALSIL	MDGAIPPGP-	---DAQLBGR	LELDLPGCPR
Triticum aestivum	CRRLAAPP-D	YCRCAALRLI	MDGVRAES--	---GHVVEG	RLGDRRDCPR

	160	170	180	190
Hordeum vulgare	ECORAFATL	VTARCNLSS	VQAPGVRLVL	LADG-----
Oryza sativa	GDLEAAASL	PAPCNVDIPN	GGG-GVCYWL	ARSGY-----
Hordeum spontaneum	VNQTSAANL	VNPQCNLMT	IHGSPSCPEL	QPGYEVVL--
Eleusine coracana	QVORAFAPKL	VTSECNLAT	IHGSPFCLSL	LGAGE-----
Sesale cereale	VTORSYAATL	VAPQCNLPT	IHGSPYCPTL	OAGY-----
Triticum durum	ENQWDVRL	VAPQCNLAT	IHNRYCPAV	RQPLWI-----
Zea mays	EVORGPAATL	VTARCNLAT	ISGVARCEWI	LGQGTMPK--
Triticum aestivum	BAOREFAATL	VTARCNLPT	VS--GVGSTL	GATGRMTIE LPK

(57) Abstract: The invention provides a method of producing plants with altered number, size or composition of starch granules, including starch granules having a more uniform size or altered starch structure, the method comprising introducing into a plant a nucleotide sequence comprising a limit dextrinase inhibitor gene, or a fragment or variant, or sequence homologous to the gene sequence provided. Also provided are a nucleotide sequence and protein of the limit dextrinase inhibitor gene, and plant and plant parts produced by the method of the invention. Modified starch is also provided.



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